

Special Problem 4-3.1

A static electric field is evaluated at point $x=2, y=-1, z=1$ (with units of meters), and determined to be:

$$\mathbf{E}(x=2, y=-1, z=1) = \frac{\hat{a}_x + 2\hat{a}_y - 2\hat{a}_z}{12\pi\epsilon_0}$$

This electric field was generated by a point charge of **-9.0 Coulombs**.

The point charge is located **3 meters** from the evaluation point $x=2, y=-1, z=1$.

1. Find the **exact location** of the point charge.
2. Determine the **electric field vector** at point $x=5, y=3, z=6$.